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# Chapter 7      Obtaining Project Financing

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This chapter provides a guide to obtaining project financing and provides some insights into what lenders and investors look for. It is assumed that the farm owner has experience borrowing money from banks or other agricultural lenders, and has first discussed financing a biogas system with their own lender.

This chapter discusses alternative financing methods, some advantages and disadvantages of each method, and some potential sources for financing.

The following general categories of project financing avenues may be available to biogas projects:

- waste management cost sharing or renewable energy loan/grant programs,
- debt financing,
- equity financing,
- third-party financing, and
- project financing.

NRCS cost sharing or state energy low interest loans or partial grants may be available for anaerobic digester projects. Debt financing is probably the most common method used for funding agricultural biogas projects. Equipment leasing, one method of third-party financing is used occasionally. Equity financing other than by the owner is rarely used, while project financing has never been used, but may be available to very large projects in the future.

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### 7-1. Financing: What Lenders/Investors Look For

Lenders and investors will decide to finance a biogas project based upon its expected financial performance and risks. Financial performance is usually evaluated using a pro forma model of project cash flows as discussed and developed in Chapter 4. FarmWare, when properly used, can

provide financial performance information for securing financing.

A lender or investor usually evaluates the financial strength of a potential project using the two following measures:

- **Debt Coverage Ratio:** The main measure of a project's financial strength is the ability to adequately meet debt payments. Debt-coverage is the ratio of operating income to debt service requirements, usually calculated on an annual basis.
- **Owner's Rate of Return (ROR) on Equity:** If a digester system is essential to continuation of farm operations, a break-even project is very satisfactory to the owner. However, banks or other lenders currently prefer to see a ROR between 12% and 18% for most types of projects. Outside investors will typically expect a ROR of 15% to 20% or more.

Exhibit 7-1 summarizes the project risk categories, viewed from the lender's perspective. The most important actions to control risks are to obtain contracts securing project construction costs and revenues. Potential investors and lenders will look to see how the farm owner or project developer has addressed risks through contracts, permitting actions, project structure, or financial strategies.

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### 7-2. Financing Approaches

This section briefly discusses funding resources for digester projects and the means of securing financing from the five sources listed above. The use of third-party financing is briefly discussed. The advantages and disadvantages of each approach are also discussed. Exhibit 7-2 is a flow chart summarizing the decision process for selecting the appropriate source of financing.

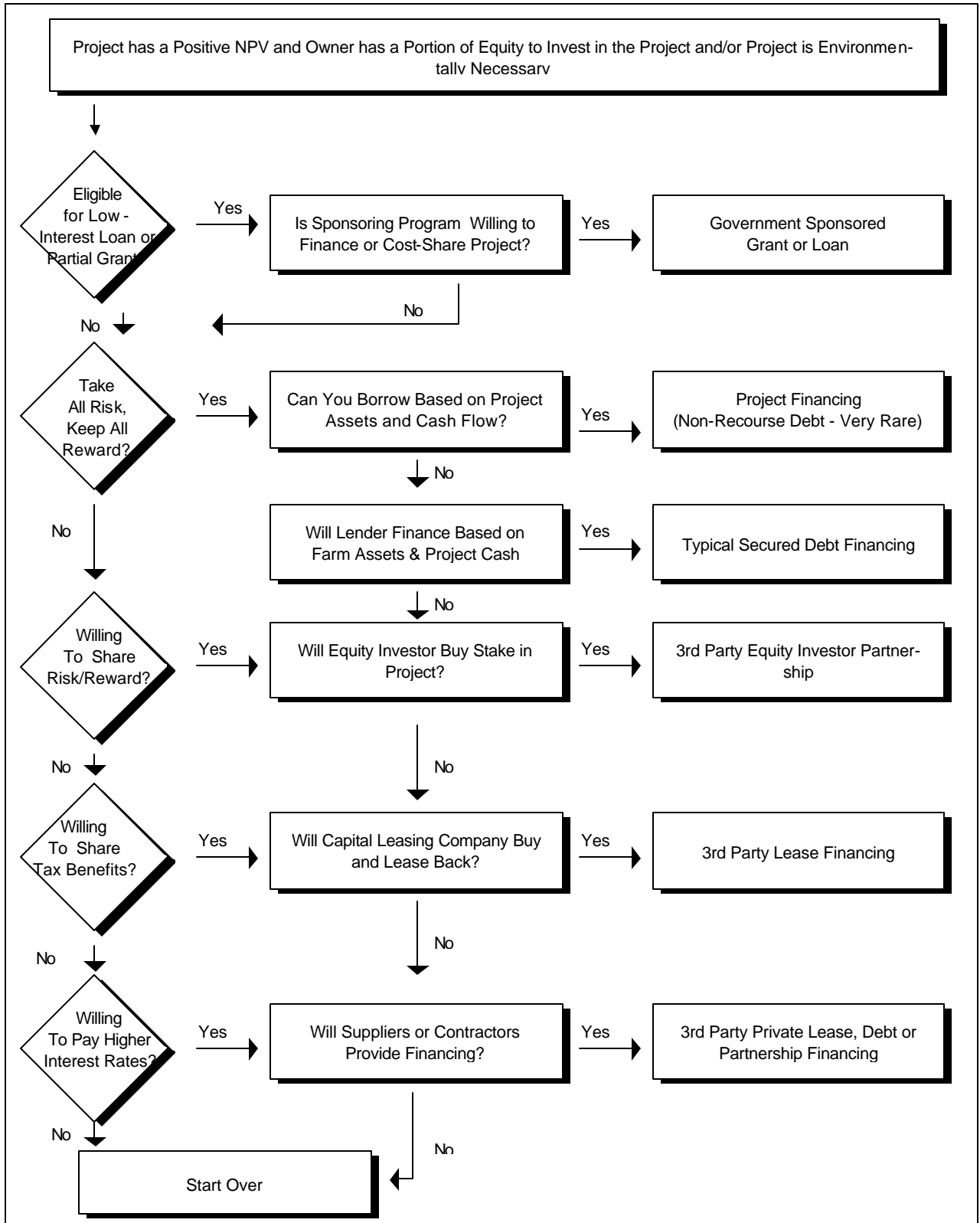
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**Exhibit 7-1 Addressing Biogas Project Risks**

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Risk Category	Risk Mitigation Measure
Biogas Production Potential	<ul style="list-style-type: none"><li>• Use FarmWare to model gas production over time</li><li>• Hire expert to report on gas production potential</li><li>• Provide for back-up fuel if necessary</li></ul>
Construction	<ul style="list-style-type: none"><li>• Execute fixed-price turnkey contracts</li><li>• Include monetary penalties for missing schedule</li><li>• Establish project acceptance standards, warranties</li><li>• Be sure the project conforms to NRCS standards</li></ul>
Equipment performance	<ul style="list-style-type: none"><li>• Select proven designer, developer, and technology</li><li>• Design for biogas Btu content</li><li>• Get performance guarantees, warranties from vendors</li><li>• Select and train qualified operators on farm</li></ul>
Environmental permitting	<ul style="list-style-type: none"><li>• Obtain permits prior to financing (waste management, building)</li></ul>
Community acceptance	<ul style="list-style-type: none"><li>• Obtain zoning approvals</li><li>• Demonstrate community support</li></ul>
Utility agreement	<ul style="list-style-type: none"><li>• Have signed contract with local utility</li><li>• Make sure all aspects are covered</li><li>• Get sufficient term to match debt repayment schedule</li><li>• Confirm interconnection point, access, requirements</li><li>• Make sure on-line date is achievable</li><li>• Include force majeure provisions in agreement</li></ul>
Financial performance	<ul style="list-style-type: none"><li>• Create financial pro forma</li><li>• Calculate cash flows, debt coverages</li><li>• Commit equity to the project</li><li>• Ensure positive NPV</li><li>• Maintain working capital, reserve accounts</li><li>• Budget for major equipment overhauls</li></ul>

**Exhibit 7-2. Financing Strategy Decision Process**



### **7-2.1 Looking for Cost Share Financing or Low Interest Loans or Grants**

There are few outright grant programs remaining for anaerobic digestion system funding. It may be possible to receive a portion of the project funding from public agency sources. The NRCS has adopted standards for covered lagoons, complete mix digesters and plug flow digesters. The 1996 Farm Bill authorized the Environmental Quality Improvement Program (EQIP) which allows funding of up to \$50,000 in improvements to farm manure management systems. Therefore, anaerobic digestion may qualify for cost share funding under NRCS waste management programs. The owner should check with the local or state NRCS offices to see if a digester project at his farm may qualify.

Another potential source of funding is the state energy office. At the time of publication, the status of renewable energy low-interest loan or grant programs is in flux. Many states offer small grants (CA, HI, IL, KS, KY, LA, MA, MN, NE, NH, PA, SC, TX, and VT) or low-interest loans (AK, AL, AZ, CA, IA, ID, MI, MO, MS, NE, NH, NY, NC, OR, SD, TN, VA, and WA) for various renewable energy projects. To learn more about these state programs, contact your state energy office. Appendix B includes a list of regional Biomass Energy Programs who should be able to help the owner contact the correct person in his state.

The advantage to receiving funding is the reduced project cost. The disadvantages are the time and effort it takes to apply for and receive funding monies.

### **7-2.2 Debt Financing**

Most agricultural biogas projects built in the last 15 years used debt financing, where the owner borrowed from a bank or agricultural lender. The biggest advantage of debt financing is the ability to use other people's money without giving up

ownership control. The biggest disadvantage is the difficulty in obtaining funding for the project.

Debt financing usually provides the option of either a fixed rate loan or a floating rate loan. Floating rate loans are usually tied to an accepted interest rate index like US treasury bills.

#### **Lender's Requirements**

In deciding whether or not to loan money, lenders examine the expected financial performance of a project and other underlying factors of project success. These factors include contracts, project participants, equity stake, permits, technology, and sometimes, market factors. A good borrower should have most, if not all, of the following:

- Signed intertie agreement with local electric utility company
- Fixed-price agreement for construction
- Equity commitment
- Environmental permits
- Any local permits/approval

However, most lenders look at the assets of an owner or developer, rather than the cash flow of a digester project. If a farm has good credit, adequate assets and the ability to repay borrowed money, lenders will generally provide debt financing for up to 80% of a facility's installed cost.

Lenders generally expect the owner to put up an equity commitment of about 20% using his/her own money and agree to an 8 to 15 year repayment schedule. An equity commitment demonstrates the owner's financial stake in success, as well as implying that owner will provide additional funding if problems arise. The expected debt-equity ratio is usually a function of project risk.

Lenders may also place additional requirements on project developers or owners. Requirements include maintaining a certain minimum debt coverage ratio and making regular contributions to an equipment maintenance account, which will be

used to fund major equipment overhauls when necessary.

### **Securing Project Financing**

Agricultural biogas projects have historically experienced difficulty in obtaining debt financing from commercial lenders because of their relatively small size and the perceived risk associated with the technology. The best opportunities for agricultural biogas projects to secure debt financing are with banks, smaller capital companies, where the owner currently borrows money, or at one of the energy investment funds that commonly finance smaller projects.

There are public sources that may provide debt financing for agricultural biogas projects. The US Department of Agriculture's Farm Service Administration (FSA) is a common source of debt financing for agricultural projects. Additionally, the Small Business Administration can guarantee up to \$1,000,000 for Pollution Control Loans to eligible businesses. Pollution Control Loans are intended to provide loan guarantees to eligible small businesses for the financing of the planning, design, or installation of a pollution control facility. The SBA suggests that farmers first exhaust FSA loan possibilities.

It may be worth contacting local and regional commercial banks. Some of these banks have a history of providing debt financing for small energy projects, and may be willing to provide project financing to a "bundle" of two or more farm biogas projects. However, transaction costs for arranging debt financing are relatively high, owing to the lender's due diligence (i.e., financial and risk investigation) requirements. It is often said that the transaction costs are the same for a 100-kW project as they are for a 10-MW or greater project. For this reason, most large commercial banks and investment houses hesitate to lend to farm scale projects with capital requirements less than about \$20 million.

### **7-2.3 Equity Financing**

Investor equity financing is a rarely used method of financing agricultural biogas projects. Project investors typically provide equity or subordinated debt. Equity is invested capital that creates ownership in the project, like a down payment on a home mortgage. Equity is more expensive than debt, because the equity investor accepts more risk than the debt lender. This is because debt lenders usually require that they be paid from project earnings before they are distributed to equity investors. Thus, the cost of financing with equity is usually significantly higher than financing with debt. Subordinated debt is repaid after any senior debt lenders are paid and before equity investors are paid. Subordinated debt is sometimes viewed as an equity-equivalent by senior lenders, especially if provided by a credit-worthy equipment vendor or industrial company partner.

There are two methods for equity finance: self and investor. Regardless of method, the following basic principles apply.

In order to use equity financing, an investor must be willing to take an ownership position in the potential biogas project. In return for this share of project ownership, the investor is willing to fund all or part of the project costs. Project, as well as some equipment vendors, fuel developers, or nearby farms could be potential equity investors.

The primary advantage of this method is its availability to most projects; the primary disadvantage is its high cost.

### **Investor's Requirements**

The equity investor will conduct a thorough due diligence analysis to assess the likely ROR associated with the project. This analysis is similar in scope to banks' analyses, but is often accomplished in much less time because of the entrepreneurial nature of equity investors as compared to institutional lenders. The equity investor's due diligence analysis typically includes a review of

contracts, project participants, equity commitments, permitting status, technology and market factors.

The key requirement for most pure equity investors is sufficient ROR on their investment. The due diligence analysis, combined with the cost and operating data for the project, enables the investor to calculate the project's financial performance (e.g., cash flows, ROR) and determine its investment offer based on anticipated returns. An equity investor may be willing to finance up to 100% of the project's installed cost, often with the expectation that additional equity or debt investors will be located at a later time.

Some types of partners who provide equity or subordinated debt may have unique requirements. Potential partners such as equipment vendors generally expect to realize some benefits other than just cash flow. The desired benefits may include equipment sales, service contracts, tax benefits, and economical and reliable energy supplies. For example, an engine vendor may provide equity or subordinated debt up to the value of the engine equipment, with the expectation of selling out its interest after the project is built. A nearby farm company might want to gain access to inexpensive fuel or derived energy. The requirements imposed by each of these potential investors are sure to include an analysis of the technical and financial merit of the project, and a consideration of the unique objectives of each investor.

### Securing Equity Financing

To fully explore the possibilities for equity or subordinated debt financing, farm owners should ask potential developers if this is a service they can provide. The second most common source of equity financing is an investment bank that specializes in the placement of equity or debt. Additionally, the equipment vendors, and companies that are involved in the project may be willing to provide financing for the project, at least through the construction phase. The ability to provide financing could be an important consideration when

selecting a builder, equipment vendor, or other partners.

### 7-2.4 Third-Party Financing.

Should a farm owner or project developer be unable to raise the required capital using equity or debt or be unwilling to accept project risks, one last form of financing might be considered. With each of the following methods, the project sponsor gives up some of the project's economic benefits in exchange for a third-party becoming responsible for raising funds, project implementation, system operation, or a combination of these activities. Some of the disadvantages of third-party financing include accounting and liability complexities, as well as the possible loss of tax benefits by the farm owner.

### Lease Financing

Lease financing encompasses several strategies in which a farm owner leases all or part of the project's assets from the asset owner(s). Typically, lease arrangements provide the advantage of transferring tax benefits such as accelerated depreciation or energy tax credits to an entity that can best use them. Lease arrangements commonly provide the lessee with the option, at pre-determined intervals, to purchase the assets or extend the lease. Several large equipment vendors have subsidiaries that lease equipment, as do some financing companies. There are several variations on the lease concept including:

- **Leveraged Lease.** In a leveraged lease, the equipment user leases the equipment from the owner, who finances the equipment purchase with extended debt and/or equity.
- **Sales-Leaseback.** In a sales-leaseback, the equipment user buys the equipment, then sells it back to a corporation, which then leases it back to the user under contract.
- **Energy Savings Performance Contracting (ESPC).** ESPC is another contracting agreement that might enable a large project to be

implemented without any up-front costs. The ESPC entity, such as a venture capitalist or green investor, actually owns the system and incurs all costs associated with its design, installation, or maintenance in exchange for a share of any cost savings. The ESPC entity recovers its investment and ultimately earns a profit. It is earned by charging the farm for supplied energy at a rate below what energy from a conventional utility would cost. The end-user must usually commit to take a specified quantity of energy or to pay a minimum service charge. This “take or pay” structure is necessary to secure the ESPC.

### **7-2.5 Project Financing**

"Project finance" is a method for obtaining commercial debt financing for the construction of a facility. Lenders look at the credit-worthiness of the facility to ensure debt repayment rather than at the assets of the developer/sponsor. Farm biogas projects have historically experienced difficulty securing project financing because of their relatively small size and the perceived risks associated with the technology. However, project financing may be available to large projects in the future. In most project finance cases, lenders will provide project debt for up to about 80% of the facility's installed cost and accept a debt repayment schedule over 8 to 15 years. Project finance transactions are costly and often an onerous process of satisfying lenders' criteria.

The biggest advantage of project finance is the ability to use others' funds for financing, without giving up ownership control. The biggest disadvantage is the difficulty of obtaining project finance for farm biogas projects.

The best opportunities for farm biogas projects to secure project financing are with project finance groups at smaller investment capital companies and banks. Opportunities also exist at one of several energy investment funds that commonly finance smaller projects. Some of these lenders have experience with landfill gas projects and may

also be attuned to the unique needs of smaller projects.

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### **7-3. Capital Cost Effects of Financing Alternatives**

Each financing method produces a different weighted cost of capital. This affects the amount of money that is spent to pay for a farm biogas power project and the energy revenue or savings needed to cover project costs.

The weighted cost of capital is dependent on the share of project funds financed with debt and equity, and on the cost of that debt or equity (i.e., interest rate on debt, ROR on equity). The more common private equity structure is the 50% debt case, and the more common project finance structure is the 80% debt case. For example, in a project finance scenario with a debt/equity ratio of 80/20, an interest rate on debt of 9%, and an expected ROR on equity of 15%, the weighted cost of capital is 10.2%. Decreasing the amount of debt to 70% means that more of the project funds must be financed with equity, which carries a higher interest rate than debt, so the weighted cost of capital becomes 10.8%. Increasing the weighted cost of capital means that project revenues must be increased to pay the added financing charges. In contrast a lower weighted cost of capital lessens the amount of money spent on financing charges, which makes the project more competitive.

Interest rates are an important determinant of project cost if the owner decides to borrow funds to finance the project. For example, raising interest rates by 1% would cause an increase of about 2% to 3% in the cost of generating electricity from a biogas project. Interest rates are determined by the prevailing rate indicators at a particular time, as well as by the project and lender's risk profiles.

Among the five main financing methods presented above, cost sharing by public agencies coupled



with debt financing usually produces the lowest financing costs over time, while private equity financing produces the highest. Generally, the five financing methods are ranked from lowest cost to highest cost as follows:

1. Cost share plus debt financing
2. Debt financing
3. Lease financing
4. Project financing
5. Private equity financing